CLAIMS

1. Apparatus for mobilising drill cuttings in a well, comprising at least one vane, and two or more blades defining at least one fluid conduit between adjacent blades, the blades and vane being rotatable relative to one another.

2. Apparatus according to claim 1, wherein the blades are configured to create a pressure difference in a fluid flowing through the at least one fluid conduit.

3. Apparatus according to claim 1 or claim 2, comprising a sleeve adapted to fit over a drill string in the well.

4. Apparatus according to claim 3, wherein the or each vane is provided on the sleeve.

5. Apparatus according to any preceding claim, wherein the blades project radially outward to a greater extent than the or each vane.

6. Apparatus according to any of claims 3 to 5, wherein the blades are mounted on a bushing that is rotatably mounted on the sleeve.

7. Apparatus according to any of claims 3 to 6, wherein the blades are arranged substantially parallel to an axis of rotation of the sleeve.

8. Apparatus according to claim 6, wherein the blades are offset with respect to an axis of rotation of the bushing such that the blades extend helically around the bushing.

9. Apparatus according to claim 8, wherein the blades are offset at an angle of 3-10° with respect to the axis of rotation.

10. Apparatus according to any of claims 3 to 9, comprising fixing means for attaching the sleeve to the drill string.

11. Apparatus according to claim 10, wherein the fixing means comprises a clamp means.

12. Apparatus according to claim 11, wherein the clamp means comprise an annular clamp.

13. Apparatus according to any preceding claim, wherein the or each vane is rotationally fixed to a drill string such that rotation of the drill string causes rotation of the or each vane.

14. Apparatus according to any preceding claim, wherein the or each vane is configured to create thrust when rotated in a fluid.

15. Apparatus according to any preceding claim, wherein the blades have an asymmetric profile.

16. Apparatus according to any preceding claim, wherein the blades are shaped in the form of foils, so that the fluid conduits defined between adjacent blades on the bushing change in profile.

17. Apparatus according to any preceding claim, wherein the at least one fluid conduit is relatively narrow at an end proximal to a drill bit and relatively wider towards another end distal from the drill bit.

18. Apparatus according to any preceding claim, wherein a cross section through the blades is in the form of an hour glass.

19. Apparatus according to claim 18, wherein the blades are shaped to have a wide root radially inner most adjacent the bushing, a wide top at the radially outermost part of the blade arranged to bear against the borehole wall, and a narrower cutaway portion between the root and top.

20. Apparatus according to any of claims 6 to 18, wherein the bushing is formed from a rigid material.

21. Apparatus according to any of claims 3 to 20, wherein the sleeve has an annular body to accommodate a tubular therethrough.

22. Apparatus according to claim 21, wherein the annular body has at least one vane integrally formed therewith.

23. Apparatus according to a claim 21, wherein the sleeve has at least one vane-receiving recess therein to receive and retain at least one modular vane.

24. Apparatus according to any of claims 6 to 23, wherein the bushing has blades integrally formed therewith.

25. Apparatus according to any of claims 6 to 23, wherein the bushing has blade-receiving recesses therein to receive and retain modular blades.

26. Apparatus according to any of claims 3 to 25, wherein the at least one vane lies parallel to the axis of rotation of the sleeve.

27. Apparatus according to any of claims 3 to 25, wherein the at least one vane is curved so as to scoop fluid from an area surrounding the vanes.

28. Apparatus according to claim 27, wherein the at least one vane is configured in a sinusoidal shape.

29. Apparatus according to claim 27 or claim 28, wherein the at least one vane is offset with respect to the axis of rotation of the sleeve such that one end of the at least one vane is circumferentially spaced around the sleeve from the other end.

30. Apparatus according to claim 29, wherein the direction of offset of the at least one vane is in an opposite direction to the offset of the blades.

31. Apparatus according to any preceding claim, wherein the at least one vane has a concave surface.

32. Apparatus according to claim 31, wherein the concave surface is provided on one side of the or each vane facing the direction of rotation.

33. Apparatus according to a claim 32, wherein the side of the or each vane is shaped to have a greater radius of curvature at one end than at another end.

34. Apparatus according to any preceding claim, wherein the at least one vane has one or more notches cut away from a radially outermost portion thereof.

35. A drill cuttings agitation assembly, comprising a tubular, at least one vane, and two or more blades defining at least one fluid conduit between adjacent blades, wherein the at least one vane and the blades are rotatable relative to one another.

36. A method of agitating drill fluid in an oil or gas well, the method comprising passing the drill fluid past at least one vane rotatable relative to two or more blades.

37. A method according to claim 36, including configuring the blades to create a pressure difference in fluid flowing through at least one fluid conduit defined by the two or more blades.

38. A method according to any of claims 36 or 37, including providing the at least one vane on a sleeve.

39. A method according to claim 38, including providing blades on a bushing and rotatably mounting the bushing with respect to the sleeve.

40. A method according to any of claims 36 to 39, including mounting and rotationally fixing the at least one vane on a drill string.

41. A method according to claim 40, including rotating the drill string to rotate the at least one vane, thereby agitating the drill fluid in the environment.

42. A method according to any of claims 40 and 41, including centralising the sleeve within a bore in which the drill string is located, by means of the blades.